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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,529

09/01/2006

Kazuyoshi Inoue

ITO-0002

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EXAMINER

PAK, SUNG H

ART UNIT

PAPER NUMBER

2874

MAIL DATE

DELIVERY MODE

08/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,529	INOUE ET AL.	
	Examiner	Art Unit	
	SUNG H. PAK	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-10,12-14 and 16-21 is/are rejected.
- 7) ☒ Claim(s) 2,5,11 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/01/06, 10/16/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

Information disclosure statement filed 9/01/2006, 10/16/2006 have been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-4, 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (US 7,304,780 B2- hereinafter "Liu") in view of Kim et al. (US 7,236,220 B2- hereinafter "Kim").

Liu discloses a display substrate comprising a transparent substrate (e.g. '21' or '20' in Fig. 2); a transparent conductive layer ('23' in Fig. 2) which is disposed on said transparent substrate and contains indium oxide as its major component and further one or two or more

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oxides selected from tungsten oxide, molybdenum oxide and niobium oxide (column 3 lines 64-column 4 lines 5);

further comprising a TFT element disposed on said transparent substrate ('20' in Fig. 2; column 1 lines 29-31).

However, Liu does not explicitly disclose the use of a metal reflecting layer as claimed in the present application. On the other hand, the use of reflecting layers in display substrate is common in the art, as taught by Kim. Kim teaches the use of a metal reflecting layer (column 9 lines 5-9); wherein said metal reflecting layer has a layer containing Al or Ag as its components (column 9 lines 5-9). The use of such reflecting layer would have been considered advantageous and desirable to one of ordinary skill in the art because it obviate the need for light emitting component and results in a display device with low power consumption. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Liu to have a reflective layer as taught by Kim.

In addition, although Liu does not explicitly teach the method of producing such display substrate comprising a step of etching said conductive and reflective layers, etching steps in producing display devices are known in the art as taught by Kim (abstract). Such etching steps would be considered advantageous and desirable to one of ordinary skill in the art because it allows for precise and accurate formation of conductive and reflective layer, where the dimensions of such layers may be accurately controlled. Therefore, it would have been obvious

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to a person of ordinary skill in the art at the time the invention was made to modify the device of Liu to use etching steps as taught by Kim.

Claims 10, 12-14, 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda (US 6,600,470 B1) in view of Kim et al. (US 7,236,220 B2).

Tsuda discloses a display substrate comprising a transparent substrate ('30' Fig. 4); a transparent conductive layer which is disposed on said transparent substrate and contains indium oxide as its major component ('34' Fig. 4; column 15 lines 4-6) and further one or two or more oxides selected from lanthanoid-based metal oxides ('22' Fig. 4; column 14 lines 55-64).

However, Tsuda does not explicitly disclose the use of a metal reflecting layer as claimed in the present application. On the other hand, the use of reflecting layers in display substrate is common in the art, as taught by Kim. Kim teaches the use of a metal reflecting layer (column 9 lines 5-9); wherein said metal reflecting layer has a layer containing Al or Ag as its components (column 9 lines 5-9). The use of such reflecting layer would have been considered advantageous and desirable to one of ordinary skill in the art because it obviate the need for light emitting component and results in a display device with low power consumption. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Tsuda to have a reflective layer as taught by Kim.

In addition, although Tsuda does not explicitly teach the method of producing such display substrate comprising a step of etching said conductive and reflective layers, etching steps in producing display devices are known in the art as taught by Kim (abstract). Such etching steps would be considered advantageous and desirable to one of ordinary skill in the art because

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it allows for precise and accurate formation of conductive and reflective layer, where the dimensions of such layers may be accurately controlled. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Liu to use etching steps as taught by Kim.

Allowable Subject Matter

Claims 2, 5, 11, 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: As discussed above, a display substrate comprising a conductive layer having indium oxide and one of tungsten, molybdenum, niobium oxide, or lanthanoid based metal oxide is known in the art.

However, none of the prior art fairly teaches or suggests such display substrate where in the composition ratio of: indium to all metal is between 0.8 to 0.99 as claimed in the present application.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUNG H. PAK whose telephone number is (571)272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sung H. Pak
Primary Examiner
Art Unit 2874

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Primary Examiner, Art Unit 2874